ABSTRACT

Stratification of family history can effectively assess risk for coronary heart disease and stroke

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Family history is a risk factor for coronary heart disease (CHD) and stroke (CVA). Most clinicians and investigators limit family history assessment to presence of early onset disease in a first-degree relative. However familial risk is influenced by number of affected relatives, their degree of relationship, lineage, and age at diagnosis. Algorithms have been created for CHD and CVA that consider these characteristics and stratify family history into three risk categories (weak, moderate and strong). To assess performance of the algorithms in their ability to discriminate CHD and CVA risk in a population, we examined family history responses of 4035 respondents to the HealthStyles national mail survey. Chi-square statistics assessed differences in proportions. With weak family history as the referent group, odds ratios for CHD, CVA and diabetes (DM) associated with strong and moderate family history of CHD and CVA were calculated using multivariate logistic regression, adjusting for demographics, self-reported obesity, hypertension and hypercholesterolemia. The area under the curve (AUC) assessed discriminatory ability of the algorithm. Respondents were 60% female, 72% white, and mean age was 48.4 yrs (SD 14.4 yrs). Frequency of personal history of CHD was 6.4%, CVA, 4.2% and DM, 12.3%. Respondents most frequently reported a family history of all three conditions - CHD, CVA and DM (15.8%); this history was more frequent than any other combination or single condition. Frequencies for strong, moderate and weak family history of CHD were 31.5%, 11.7% and 56.8%. Strong and moderate family history of CHD was positively associated with CHD (OR=3.9; 95% CI, 2.8-5.4 and OR=1.9; 95% CI, 1.1-3.0; AUC, 86.8%). Strong family history of CHD was also positively associated with CVA (OR=2.2; 95% CI, 1.6-3.2; AUC, 79.2%) and DM (OR=1.3; 95% CI, 1.1-1.6; AUC, 78.0%). Frequencies for strong, moderate and weak family history of CVA were 14.8%, 19.2% and 66.0%. Strong and moderate family history of CVA was positively associated with CVA (OR=2.7; 95% CI, 1.8-3.9 and OR=1.8; 95% CI, 1.2-2.6; AUC, 79.8%). Strong familial risk for CVA was also positively associated with increased risk of CHD (OR=1.7; 95% CI, 1.2-2.3; AUC, 84.6%) and DM (OR=1.7; 95%CI, 1.3-2.3; AUC, 78.2%). Familial aggregation of CHD, CVA and DM is prevalent. Familial risk stratification for CHD and CVA can identify individuals at high risk for CHD, CVA and DM. Familial risk stratification should be considered in cardiovascular research and prevention efforts.